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First record of *Trappea darkeri* from Turkey

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Abstract—The truffle-like basidiomycete genus *Trappea* is reported as a new record from Turkey and western Asia, based on a collection of *T. darkeri* from Niğde province. This is also the first record of the family *Trappeaceae* for the country. A brief description and photographs of the collection is provided.

Key words—*Basidiomycota,* biodiversity, *Hysterangiales,* taxonomy

Introduction

Trappea Castellano is a truffle-like fungi genus in the family *Trappeaceae* (Kirk & al. 2008). The genus was proposed by Castellano (1990), who segregated *T. darkeri* and *T. phillipsii* from *Hysterangium* Vittad. based on their smooth bacilloid basidiospores and layer of sterile locules below the peridium. *Trappea* species are characterized by subglobose to irregularly lobed fruit bodies with one or more rhizomorphs emerging from the base; a thin white peridium covering a zone of sterile chambers; an olive- brown to bright olive-green gleba with small empty chambers and a dendroid, gelatinous to cartilaginous columella; and ellipsoid to oblong basidiospores.

Index Fungorum (www.indexfungorum.org accessed 25 June 2019) lists four *Trappea* species, none of which has been reported from Turkey (Acar & al. 2019, Sesli & Denchev 2014, Solak & al. 2015, Türkekul 2017). Here we contribute to the Turkish mycobiota and report *T. darkeri* as the first representative of the genus and family in Turkey.

Materials & methods

The *Trappea* specimen was collected from Ulukışla district, Niğde province, in 2019. The basidiomata were photographed in their natural habitat, where ecological and morphological observations were taken. Dried material was examined and photographed microscopically in the fungarium using a Nikon Eclipse Ci-S trinocular compound microscope with Nikon DS-Fi2 camera and a Hitachi SU5000 scanning electron microscope. The specimen was identified by consulting the literature (Castellano 1990, Desjardin & al. 2014, Gómez-Reyes & al. 2014, Montecchi & Sarasini 2000, Ruini 1990, Zeller 1939). The collection is preserved in the fungarium of Department of Biology, Science Faculty, Karamanoğlu Mehmetbey University, Karaman, Turkey (KMU).

Taxonomy

Trappea darkeri (Zeller) Castellano, Mycotaxon 38: 3 (1990) Fig. 1

Basidioma 40 mm in diam, hypogeous to semi-hypogeous, globose, surface glabrous, with basal rhizomorphs at the base, whitish, light brownish when rubbed. Peridium whitish in section, not separable, membranous-leathery. Gleba firm, bright olive-green, olive gray to light olive-brown, white near the peridium, spongy gelatinous. Columella distinct, gelatinous, translucent, typically dendroid and reaching almost throughout the sporocarp. Odor unpleasant. Basidia 19–25 × 5–8 µm, irregularly cylindrical to clavate, (4–)6(–8)-spored, clamp connections present. Cystidia not observed. Basidiospores 4–5 × 2–3 µm, ellipsoid to cylindrical, smooth, hyaline, sessile or with a short pedicel.

Specimen examined—**TURKEY, Niğde: Ulukışla**, Çiftehan village, 37°30′N 34°47′E, 930 m, in soil among needle-litter in pine–oak mixed forest, 23.03.2019, O.Ber 342 (KMU).

Comments—*Trappea darkeri* has a hypogeous to semi-hypogeous habit with long rhizomorphs at the base and is distributed in high altitudes of 1000-3000 m (Castellano 1990, Desjardin & al. 2015, Gómez-Reyes & al. 2014). It is distinguished by a layer of sterile locules just under the peridium, and small, cylindrical spores (Gómez-Reyes & al. 2014). Morphologically it may be confused with *Hysterangium* species with rubbery-gelatinous olive-green gleba, which differ in their easily separable peridia, absence of sterile locules next to the peridium and larger, spindle-shaped spores (Desjardin & al. 2015, Siegel & al. 2019). Ecologically and morphologically similar, *Trappea pinyonensis* States can easily be distinguished from *T. darkeri* by the staining reactions of the peridium and rhizomorphs and its longer (5–6.2 × 2–2.5 µm) spores (States 1991).

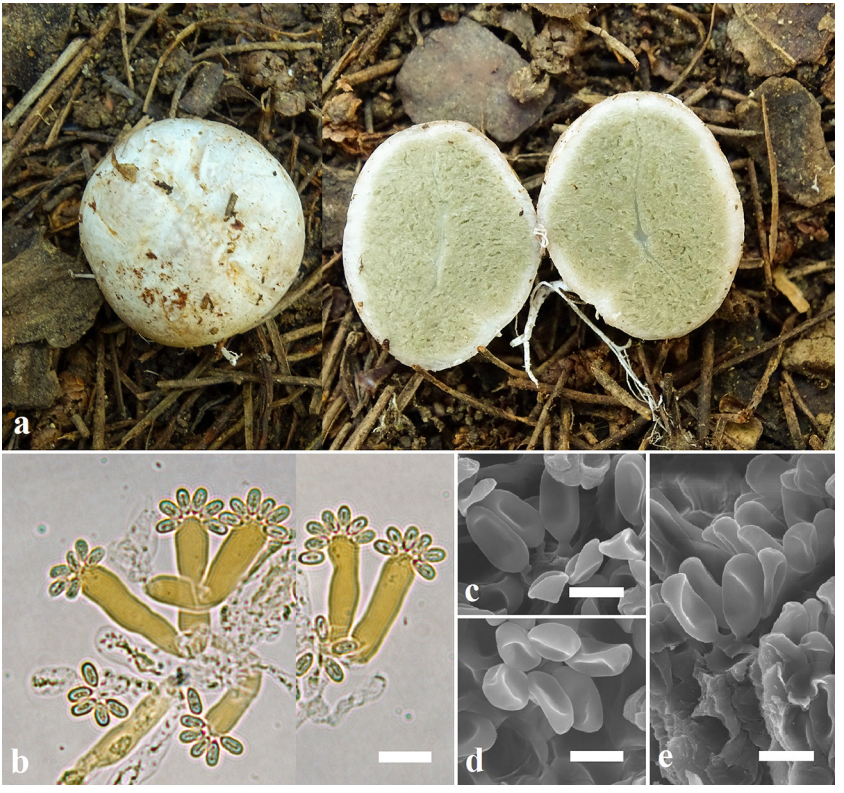

Fig. 1. *Trappea darkeri* (KMU – Ber 342). a. Basidiomata; b. Basidia and basidiospores; c–e. Basidiospores (SEM). Scale bars: b = 10 µm; c–e = 3 µm.

Although our specimen was collected at a slightly lower elevation (930 m) than cited elsewhere, its morphological characters agree with those cited in the literature (Castellano 1990, Desjardin & al. 2015, Gómez-Reyes & al. 2014, Montecchi & Sarasini 2000, Ruini 1990, Zeller 1939).

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